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BERGSON'S THEORY OF MEMORY

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P A R T I.

THE THEORY EXPLAINED

BERGSON'S THEORY OF MEMORY

Chapter I

INTRODUCTION

Every chapter of psychology ends with a confession of ignorance. The introspective psychologist accepts his own states of mind as facts, and records and analyses them, but ignores their physical basis and other relations. The physiological psychologist examines the nervous systems of men and animals to determine the relation of nerve processes to psychic life. He is able to affirm that "the law that some neural process accompanies every state of consciousness holds good of the higher as of the simpler states".[1] But the Will by which we "seem to concentrate nervous energy from places of low potential into the place of highest potential" is still largely a mystery to him.[2] Moreover he feels bound to postulate "an existent, an immaterial being in which the separate neural processes produce their elementary affectations, which we have called the Soul."[3] It does not lie within his field

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1 MacDougal, Physiological Psychology, p.167.
2 Ibid.,p.167. 3. Ibid.,p.168.

to discuss this Will and this Soul. He proclaims a sceptical agnosticism and says, "We do not know; let us find out".

But an agnosticism of this kind is a difficult attitude even for a trained scientist and quite out of the question for the ordinary work-a-day man. James' Will to Believe came forward to fill the need of the hour. It points out that we cannot put off such momentous questions as the reality of Spirit, the freedom of the Will, the existence of God. We must live and do, and so we must act as if one or other of the alternatives involved were true; in fact, to the extent to which an idea works out practically, it is true. On these grounds we are justified in acting on the faith that the valuable conceptions of God, freedom, and immortality are valid.

James' justification of faith or the "Right to Believe" in cases where complete scientific evidence is still lacking, bears some resemblance to Kant's conclusion, though their methods of arriving at their conclusions are widely different. Kant denies that we can have knowledge of things in themselves, and limits science to the sphere of nature or phenomena. But while we can never know, morality only requires

us to be able to think freedom without self-contradiction; not to understand it".[1] The freedom of the will can never be scientifically demonstrated, because "in its visible acts as a phenomena it is not free, but necessarily subject to the law of nature, while yet, as belonging to a thing in itself it is not subject to that law but is free".[2] Thus, while freedom is beyond the possibility of scientific demonstration, it is not self-contradictory, but on the contrary it is a necessary postulate of morality and can be given a transcendental proof. "I have, therefore," Kant says, "found it necessary to deny knowledge of God, freedom, and immortality, in order to find a place for faith".[3]

Thus the scientist professes an agnosticism regarding the immaterial; the Kantian acknowledges the limitations of human knowledge and elevates the sphere of faith; and the pragmatist confesses the present insufficiency of the results of science, believes in its continuous achievement, but while awaiting evidence he justifies the right to believe.

Bergson comes confessing neither ignorance nor the limitations of knowledge; he neither professes agnosticism nor leaves anything to unnecessary faith. The

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1. Watson, Selections from Kant., p.6.
2. Ibid..p.6. 3. Ibid..p.6.

first lines of his Introduction to "Matter and Memory" are: "This book affirms the reality of spirit and the reality of matter, and tries to determine the relation of one to the other by the study of a definite example, that of memory".[1] His conclusion to "Time and Free Will" is: "Freedom is therefore a fact, and among the facts we observe there is none clearer".[2] In the "Creative Evolution" we find the following suggestive remark: "Indeed, maturity and old age are,properly speaking, attributes only of my body; it is only metaphorically speaking that I apply the same names to the corresponding changes of my conscious self".[3] Equally suggestive is the statement in "Matter and Memory": "That which is commonly held to be a disturbance of the psychic life itself, an inward disorder, a disease of personality, appears to us,from our point of view, to be an unloosening or breaking of the tie which binds the psychic life to its motor accompaniment".[4] It is but a deduction from these statements to the conclusion that the psychic life can and does survive the death of the material body. Indeed Bergson is widely popular for his apparent support of this doctrine.

1.Bergson, Matter and Memory,vii
2 2. Bergson, Time and Free Will, 221.
3. Bergson, Creative Evolution, 16.
4. Bergson, Matter and Memory. xv

It should be interesting, therefore, to see how Bergson arrives at these conclusions. If it be objected that we should confine ourselves to the more limited problem of Bergson's Theory of Memory, it must be borne in mind that memory occupies the important position of being at the intersection of min mind and matter. His theory of memory is, therefore, central in his whole philosophy. Memory, according to Bergson, is a definite example exhibiting the relation of body and spirit, so that, wrapped up in the problems of memory are all the problems of mind and matter, freedom and determinism, time and space, as well as perception, retention, and recollection.

The plan of the study shall be; (1) how he develops his theory of memory; (2) the evidence by which he seeks to verify his theory; and (3) a criticism and reconstruction of his theory.

Chapter II

SPACE AND TIME

Bergson's theory of space is very similar to that of Kant, for what he calls an intuition amounts to about the same as what Kant calls an a priori form of perception. Like Kant, also, he associates the concept of space with that of number. We teach number, he says, by means of objects. The balls or other objects set side by side on the table are narrowed down to points side by side in space. Whenever we really think of the number five, for instance, we conceive it spatially. In fact, the law that two bodies cannot occupy the same space at the same time is not so much a physical as a logical necessity; it would be contradicting the meaning of two to have them occupy the same space.

This gives a clue to the nature of space. "For coexistence to give rise to space, there must be an act of the mind which takes them all in at the same time and sets them in juxta-position; this unique act is very like what Kant calls an a priori form of sensibility.....If we seek to characterize this act we see that it consists essentially of the intuition, or rather the conception, of an empty, homogeneous medium. For it is scarcely possible to give any other definition

of space; space is what enables us to distinguish a number of identical and simultaneous sensations from one another; it is thus a principle of differentiation other than qualitative differentiation, and hence it is a reality with no quality." [1] Space, then, is the intuition of a medium, homogeneous, infinitely divisible, and non-qualitative. It is purely quantitative.

Time is quite a different matter. To measure time arithmetically is to apply number to it, and number, as we have seen, applies properly only to simultaneity in space. What we constantly do is to apply spatial measurements to time and represent time by space, but this is a fallacy. We measure time by the distance the hands of a clock have travelled, and we represent time by a line or chain.

It is Kant as well as the astronomers and the physicists that Bergson is criticising here; for Kant explained time as the form of sensibility by which we arrange the sensible manifold in a "continuous line or chain". This confusion of time with space, Bergson says, has always given rise to serious difficulties. Heraclitus, Parmenides, Anaxagoras of old, Kant and

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1. Bergson, Time and Free Will, p.94.

all the scientists of modern times, have found this their stumbling block. No one has yet satisfactorily explained time and motion. Some have denied motion, some have postulated it, but the paradoxes of the Eleatics have come down to us unexplained.

The confusion consists in substituting for the motion itself, the space traversed by the moving body. To be sure, the successive positions of the moving body do occupy space, but the process by which it passes from one position to the other has no reality apart from a conscious spectator. Motion is not an object, but a process, and "in so far as it is a passage from one point to another it is a mental synthesis, a psychic, and therefore an unextended process."[1] We must, therefore, distinguish the two elements in motion --the space traversed and the process involved. "The first of these elements is a homogeneous quantity; the second has no reality except in consciousness".[2] In contrast to Kant's "continuous line or chain" Bergson's time is a process or an act. "Within myself a process of organization or interpenetration is going on which constitutes true duration." [3]

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1. Time and Free Will, p.110
2. Ibid., p112.
3. Ibid..p.113

And now, Bergson thinks, we can solve Zeno's riddles. How can Achilles overtake the tortoise? Never if we consider space alone, for space is infinitely divisible and there are an infinite number of positions between two points. And if time can be represented by space it is again a mathematical impossibility for the same reason. "But the truth is that each of Achilles' steps is a single indivisible act, and that after a given number of these acts, Achilles will have passed the tortoise".[1]

Bergson sums up his theory of true duration is these words: "Below homogeneous duration, which is the extensive symbol of true duration, a close psychological analysis distinguishes a duration whose heterogeneous movements permeate one another; below the numerical multiplicity of consciousness, a qualitative multiplicity; below the self with well defined states, a self in which succeeding eachother means melting into one another, and forming an organic whole".[2]

One would be forced to conclude from the exposition in Time and Free Will that time was purely a

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1. Bergson, Time and Free Will, p.113
2. Ibid.,p.128

mental synthesis or a process of "organization of consciousness". This, however, is not his full meaning. In "Creative Evolution" we find a wider application of the word as the following quotationsin indicate. "The universe endures. The more we study the nature of time the more we shall comprehend that duration means invention, the creation of forms, the continual elaboration of the absolutely new".[1] "Like the universe as a whole, like each conscious being taken separately, the organism which lives is a thing that endures".[2] "Wherever anything lives, there is, open somewhere, a register in which time is being inscribed".[3]

Time, then, is not only peculiar to human mind and consciousness, but to mind and consciousness in every form, and not only to mind and consciousness in the narrower sense of these terms, but to life in its widest application. Time, therefore, is identical with the process of Becoming, the activity of the Elan Vital. Time must always be associated with life and consciousness, and vice versa. "We were right" he says in the concluding chapter of "Matter and Mem-

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1. Bergson, Creative Evolution, p.11
2. Ibid. p.16
3. Ibid. p.17

ory", "when we said at the beginning of the book, that the distinction between body and mind must be established in terms not of space but of time".[1]

This being the case the concept of time is ess essential to the problem of memory,; for memory partakes of the nature of body or matter on the one side, and mind or life on the other. The general conceptions of matter and life will be considered next.

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1. Bergson, Matter and Memory , p.294

Chapter III

MATTER AND LIFE

The dualism of quantity and quality, space and time, is carried through Bergson's whole philosophy. This dualism is especially marked in his theory of matter and life where inert matter and the vital impulse are spoken of as the inverse of eachother. "Life is a movement, matter is the inverse movement".[1] He usually pictures life as an upward movement, and matter as a downward movement, though "as far as matter is concerned we may neglect the flowing without serious error".[2] He therefore describes life as a streăm flowing through and around the obstructions of the land; or as the ocean waves flowing through aninto the bays, inlets, and straits of the rocky coast; or as the upward striving of a jet of steam through the obstructions of the condensing cloud of vapor.

Though inert matter and the vital impulse are the inverse of eachother in every respect it is not necessary to assume that they have separate origins. Bergson's theory is that they are derived from an

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1. Bergson, Creative Evolution, p.263.
2. Ibid. p.103.

an original impulse which had a definite point of origin. The best illustration he can give is that of a jet of steam from the crack in the boiler of an engine.[1] The impulse forces it in a strong upward str stream but it condenses into drops and falls back like rain. The upward motion represents life; the inversion and downward motion represents matter. Bergson warns us not to carry the simile too far but merely wishes to illustrate how opposite motions and opposite characteristics may be derived from a single source and impulse.[3]

The vital impulse started as a single impulse but has taken divergent directions as it progressed. He likens it to an explosive shell which travels through the air for a time and then bursts into fragments. Each fragment must also be considered as an explosive unit which again explodes, and so on indefinitely.[2] "When a shell bursts, the particular way in which it breaks is to be explained both by the explosive force of the powder it contains and by the resistance of the metal. So the way of life breaks into individuals and species. It depends, we think on two series of causes; the resistance life meets

1. Bergson, Creative Evolution, p.103
2. Ibid., p.263.

meets from inert matter and the explosive force -- due to an unstable balance of tendencies-- which life bears within itself".[1] Or, using the simile of the stream, he tries to show how how it has divided itself into the diverging forms and species. "In reality life is a movement, materiality is the inverse movement, and each of these two movements is simple, the matter which forms the world being an undivided flux, and undivided also the life which runs through it cutting out in it living beings all along the track".[2]

As the vital impulse encounters matter it thus organizes it into living forms, and in doing so it divides and takes diverging paths. The time honored theory had been that plants have arisen from the inorganic world, animals from plant life, and finally man from the higher animals. "The cardinal error which from Aristotle onwards has vitiated most of the philosophies of nature has been to see in vegetative, instinctive, and rational life three successive degrees of one and the same tendency."[3] Bergson's view would make them the three main highways of a diverging impulse. He criticises the evolutionary

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1. Bergson, Creative Evolution , p.103
2. Ibid., p.263
3. Ibid., p.136.

theories of Lamark, Darwin, Eimer, and others on this ground. Evolution, he shows, has not been a continuous, one-line development, but a discontinuous many-lined process. "Animals and vegetables must soon have separated from the common stock, the vegetables falling asleep in immobility, the animals on the contrary becoming more and more awake and marching on to the conquest of a nervous system....." [1] The evolution of the animal kingdom, apart from regressions towards vegetative life, has taken place in two divergent paths one of which led to instinct, the other to intelligence... "[2]..The evolution of the arthropods reached its culminating point in instinct, particularly in the hymenoptera, as that of the vertebrates in man".[3]

Evolution is not even necessarily a progress at all. "In many cases we observe a marking time, and still more often a deviation or turning back".[3] In fact, failure has been the rule. The shell of the mollusc and the carapace of the crustacean gave them protection but at the cost of further progress and with the penalty of partial torpor.

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1. Bergson, Creative Evolution, p.136
2. Ibid.,p.141.
3. Ibid.,p.109. See also pp.136 - 139.

At one point alone the current has been able to flow smoothly and freely. "From our point of view life appears in its entirety as an immense wave which, starting out from a centre, spread outwards, and which on almost the whole of its circumference is stopped and is converted into oscillations: at a single point the obstacle has been forced, the impulsion has passed freely. It is this freedom that the human form registers. Everywhere but in man consciousness ahs come to a stand; in man alone it has kept on its way".[1]

In man's triumphant march Bergson sees no necessary limitation. He concludes his section on the meaning of evolution with this inspiring picture. "All the living hold together and all yield to the same tremendous push. The animal takes its stand on the plant, man bestrides animality, and the whole of humanity in space and in time, is one immense army, galloping beside and before and behind each of us in an overwhelming charge, able to beat down every resistance and clear the most formidable obstacles, perhaps even death".[2]

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1. Bergson, Creative Evolution, p.280.
2. Ibid., p.286.

Chapter IV

DETERMINISM AND FREEDOM

The relation of inert matter to the vital impulse is exhibited in a special manner by the human body and mind, representing as man does, the highest attainment of life, yet cumbered as he is with materiality. Likening life to a rising wave Bergson says: "At one point alone it passes freely, dragging with it the obstacle which will weigh on its progress but will not stop it. At this point is humanity; it is our priveleged situation....The matter which it bears along with it and in the interstices of which it inserts itself, alone can divide it into distinct individuals. On flows the current, running through human generations, subdividing itself into individuals....Thus souls are being continually created, which, nevertheless, in a certain sense, pre-existed. They are nothing else than the little rills into which the great river of life divides itself".[1]

Bergson then goes on to indicate how the two are distinct, yet mutually determine eachother. "The movement of the stream is distinct from the river bed, although it must adopt its winding course. Consciousness is distinct from the organism although it must

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1. Bergson, Creative Evolution, p.284.

undergo its vicissitudes".[1] Hence we have a free and vital impulse at the basis of the nervous and cerebral mechanism; but "the destiny of consciousness is not on that account bound up with that of cerebral matter".[2]

This doctrine gives Bergson his conception of mechanism and freedom, the subject to which his book, "Time and Free Will" is devoted. The book precedes "Creative Evolution" but the fundamental dualism is evident from the first. Just to the extent to which we are ruled by habit, by association of ideas, and by chains of reason we are mechanistic; in so far as our actions are the expression of the deep seated and spontaneous vital impulse which is our true self we are free.

"Our perceptions, sensations, emotions, and ideas" he says, "occur under two aspects; the one clear and precise but impersonal; the other confused, ever changing, and inexpressible, because language cannot get hold of it without arresting its mobility".[3] The former is the intellectual aspect which breaks up the flow of consciousness and expresses it in language.

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1. Bergson, Creative Evolution, p.285. 2. Ibid.,p.285
3. Bergson, Time and Free Will, p.129.

The function of language is just to break up the stream of consciousness or to grasp sections of it. The more deep and inexpressible aspect is the instinctive or intuitive self. It is the more complete and the more continuous interpenetrating of consciousness? This is illustrated by the fact that the beliefs to which we most strongly adhere are those of which we would find it most difficult to analyse and explain.[1] What makes them valuable in our eyes is that they match the general color of all the rest of our ideas. These deep-seated conscious states have no relation to quantity; they are purely qualitative. It is only in proportion as we get away from the deeper strata of the self that the conscious states tend to assume a numerical multiplicity. At the same time they tend to become more and more impersonal and more and more capable of being expressed in language.

The laws of the association of ideas and the principles of mechanism apply to the superficial aspect of consciousness, but not to the deep-seated self. It is characteristic of the intellect to seek series of associations and chains of reasons, but it does not follow that these form the true explanation

[1] Bergson, Time and Free Will, p.136.

of our actions. We often find ourselves carefully weighing motives and deliberating over consequences when our mind is already made up as to our course of action. We find ourselves defending our beliefs on rational grounds when we really hold them because they are part of us. We find ourselves calling up a chain of antecedents to account for an action that has already taken place. Observations such as these indicate that that association of ideas may be merely an ex post facto attempt to account for an action. In reality, however, "between successive conscious states there exists a difference of quality which will always frustrate any attempt to deduce any one of them a priori from its predecessors".[1]

The superficial, intellectual aspect of conscious life is partially subject to the laws of the association of ideas. Our every day acts usually obey these laws, in which cases we act as mere "conscious automatons". "It is to these acts, numerous but insignificant, that the associationist theory applies".[2] "Here will be found within the fundamental self, a parasitic self which continually encroaches upon the other. Many

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1. Time and Free Will, p.27
2. Ibid., p.167.

live this kind of a life and die without ever knowing true freedom."[1]

True freedom will consist in acting according our whole self, but particularly according to our deep seated intuitive impulse. He illustrates his meaning extremely well in the following extended quotation: "When our most trustworthy friends agree in advising us to take some important step, the sentiments which they utter with so much insistence lodge on the surface of our ego and there get solidified in the same way as the idea of which we spoke just now. Little by little they will form a thick crust which will cover up our own sentiments. We shall believe that we are acting freely and it is only by looking back to the past, later on, that we shall see how much we were mistaken. But then,-at the very minute when the act was going to be performed, something may revolt against it. It is the deep-seated self rushing to the surface. It is at the great and solemn crises, decisive of our reputauion with others, and yet much more with ourselves, that we choose in defiance of what is conventionally called a motive, and this absence of any tangible reason is the more striking the deeper our freedom goes."[2]

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1. Time and Free Will,p.166. 2. Ibid.,p.169.

"It is the deep-seated self rushing to the surface. It is the outer crust bursting, suddenly giving way to an irresistible thrust. Hence, in the depth of our self, below the most reasonable pondering, over the most reasonable pieces of advice, something else was going on --a gradual heating,, and a sudden boiling overof feelings and ideas, not unperceived but unnoticed. If we turn back to them and carefully scrutinize them in memory we shall see that we had ourselves shaped these ideas, ourselves lived these feelings, but that through some strange reluctance to exercise our will we had thrust them back into the darkest depth of our soul whenever they came to the surface."[1]

The action which has been performed in this case does not express some superficial association, but it agrees with the whole of our most intimate feelings, thoughts, and aspirations. This type of action, when it expresses our whole personality and inner life, is true freedom.

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1. Bergson, Time and Free Will, p.169.

Chapter V

BRAIN AND PERCEPTION

The relation between mind and brain, soul and body, spirit and matter has been the source of endless controversy. Most thinkers have ranged themselves under the heads idealists and realists. Bergson points out that the beginning of their differences lies in their conceptions of matter. The idealists hold that matter has no existence outside the play of representations within the mind. The realists make matter the fundamental thing outside of which there is no life or mind. Bergson thinks that he has settled the controversy. "Matter in our view is an aggregate of 'images', and by 'image' we mean a certain existence which is more than what the idealist calls a representation, and less than what the realist calls a thing --an existence placed half way between the 'thing' and the representation".[1]

Now the brain is only one image among all the other images which constitute the universe; it is

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1. Bergson, Matter and Memory, vii-viii.

part of the material world. If the brain by its disturbances created the world as the idealists hold, then by eliminating the brain together with its movements the whole universe would be wiped out.

Nevertheless there is a difference between my body and the rest of the universe. As a rule any image influences other images in a way which is determined and even calculated through what are called the laws of nature. My body, on the other hand, though like other images it receives and gives back movement, yet unlike the rest of the world it seems, within certain limits, to choose the manner in which it shall react.[1] The body, in short, is a priveleged image in that it chooses its reaction among the possible ones , and thus exerts what Bergson calls a real influence.

What determines this choice is the advantage which it may derive from the surrounding images. This implies that the images display in some way the advantage which my body may derive from them. My perception of a body is just the totality of my possible reactions upon it. Distant objects are

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1. Bergson, Matter and Memory, p.4-5.

vague and indifferent; they have but little interest for me because they are beyond the range of my activity. Those near stand out clearly in their size, shape, color, and movement; these qualities represent my possible actions of touch and movement. My body, being a priveleged image can choose among the many possible actions or simply not react at all.

Stimilus, perception, and reaction are, therefore ,closely associated. Indeed, they are parts of one complete act. If the stimulus received were immediately prolonged into action there would be no perception --it would be unnecessary. In the lower forms of animal life it is probable that the processes of perception and movement are barely distinguished; the same prolongations of protoplasm which touch the prey mechanically envelope it . Here touch is active and passive at almost the same time. "But in the measure that the reaction becomes more uncertain, and allows more room for suspense, does the distance increase at which the animal is sensible of the action of that which interests it".[1] Sight, hearing, and smell bring it into relation with more distant images.

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1. Bergson, Matter and Memory, p.22.

At the same time it postpones action making it more uncertain, more indeterminate. "Perception is master of space in the exact measure in which action is master of time".[1]

There is a wide difference between an object being present and being perceived. In the first case the image is present, that is, it is bounded by the other images and conditioned by them; in the other case only the phases of it which interest the agent are re-presented. One can conceive of a pure perception in which the total image present would be re-presented in consciousness, but such a perception exists only in theory. "That which distinguishes it as a present image is the necessity which obliges it to act through every one of its points upon all the points of all other images, to transmit the whole of what it receives, to oppose to every action an equal and contrary reaction, to be, in short, merely a road by which pass, in every direction, the modifications propagated throughout the immensity of the universe."[2] Now if perception were a mirror it would re-present the total image by reflecting all

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1. Bergson, Matter and Memory, p.23.
2. Ibid., p. 28.

the rays of light. But perception reflects only those rays upon which the subject can react, only those which the image can influence. This means a spontaneity, an indeterminism, a power of choice. "Our representation of things would thus arise from the fact that they are thrown back and reflected by our freedom".[1]

The question now is, how is it possible that my body is a priveleged image, and how is it possible that it exhibits this freedom? Sever the afferent nerves of the cerebro-spinal chord and perception vanishes; the body ceases to be priveleged. The section of those nerves has only one intelligible effect; that is to interrupt the nerve current which goes from periphery to periphery by way of the brain, and yet it has by its severance destroyed perception.

It is commonly supposed that the brain in some way provides for the connection between the nervous system and perception. But the difference between the spinal chord is merely one of complication. In the spinal chord the incoming current is reflected at once into a definite motor teact; in the second case

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1. Bergson, Matter and Memory, p.29

the excitation mounts to the brain and descends again to the motor cells of the spinal chord. "I do not understand", says Bergson, "I shall never understand that it draws thence a miraculous power of changing itself into a representation of things, and moreover I hold this hypothesis to be useless as shall shortly appear".[1]

What, then, is the function of the brain if it is not to produce representations? No light would be thrown on the question by watching the minute movements that take place between cell and cell or within the cell plasm. We would only see a highly complex system of tracts for conducting excitement. "In our opinion, then, the brain is no mare than a kind of central telephone exchange; its office is to allow communication or delay it."[2] The excitation may concentrate in any particular channel, or it may dissipate itself in innumerable nascent movements. The office of the brain seems to be limited to the transmission and the division of movement, and with this peculiarity that it permits the stimulation to "reach at will this or that motor mechanism of the spinal chord and so to choose its effect."[3]

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1. Bergson, Matter and Memory, p.19.
2. Ibid.,p.19.

The nervous system, then, is in no sense an apparatus which can serve to fabricate or even prepare representations. Its function is limited to that of selecting, on the basis of interest, from the total present of the world of images, and, as we shall see, from the total past of the world of memory. But as a mere mechanism, the brain can be no more than the machine by means of which our freedom thus realises itself. The mechanism can receive movements and prepare movements in this special, selective manner only if it is the agent of a vital, free, and spontaneous individuality.

Two problems, therefore, present themselves: whence this choice which we have observed, and whence these representations if they are not the product of the brain? The answer leads us directly into the problem of memory.

Chapter VI

HABIT AND MEMORY

Bergson has now sufficiently emphasised the supposition that the body with its nervous system can receive, transmit, or disperse motion, but cannot possibly give rise to representations or memory images. It is quite conceivable, however, that in the form of motor mechanisms, it can store up the action of the past. Images of the past, however, must be stored up otherwise. He therefore formulates this hypothesis as the foundation of his theory of memory: "The past survives under two distinct forms: first, in motor mechanisms, secondly, in independent recollections."[1]

The two forms of memory can be distinguished in any case of memorising. A person, for example, learns a poem by heart, i.e. by successive repititions the words become more and more linked together till they become a continuous whole. The memory of the poem in this case has all the marks of habit --it is acquired by successive repititions of the same effort,

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1. Bergson, Matter and Memory, p.87.

"and it is stored up in a mechanism which is set in motion as a whole by an initial impulse".[1] This memory, in short, is a habit depending upon a cerebral mechanism, and it belongs to the world of materiality, causality, and automoty.

But this is not all. Not only can the person remember the poem as a whole, but he can remember each successive repitition. Each successive reading, while it renders the poem more familiar, also stands out by itself as a separate experience, "is entirely sufficient to itself, subsists exactly as it occurred, and constitutes with all its concomitant perceptions an original moment of my history".[2] Unlike the first memory which requires a period of time and is worked out part by part, this memory is a representation and only a representation and can be grasped as a whole in one picture. It records in the form of memory images "all the events of our daily life as they occur in time: it neglects no detail; it leaves to each fact, to each gesture, its place and date".[3] This memory belongs to the world of life, freedom, and spontaneity.

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1. Bergson, Matter and Memory, p.90.
2. Ibid. p.91.
3. Ibid., p.92.

"These two memories run side by side and lend to eachother a mutual support".[1] The automatic memory has a wider field than is generally supposed. By habit we perform the many movements of dressing, of finding our way about the streets, and of doing the routine of the day's work. In the same way lessons committed to memory may be automatically repeated. Some aphasics who are unable to utter a word spontaneously can recollect without a mistake the words of an air they have sung, or a prayer, or the days of the week.

On the other hand the spontaneous or pure memory has a much wider field than the automatic. The latter, depending on the nervous mechanism, is confined chiefly to the useful. The former is disinterested and records all events alike. "To call up the past in the form of an image we must withdraw ourselves from the action of the moment, we must have power to value the useless, we must have the will to dream".[2] Its scope, then, is infinitely wider than that of automatic memory which is only a form of habit.

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1. Bergson, Matter and Memory, p.98.
2. Ibid., p.94.

Both forms of memory are essential. Without neural habits we would be ineffective dreamers; without pure memory we would be automatons. When in normal life we see the automatic memory working by itself we call it a case of absent mindedness. Habit works itself lut at wrong times or in wrong places as in the case of one who starts to get dressed for dinner and goes to bed instead. Such conduct suggests a mechanism within a living being. "Then you will get the image so far found in a ll laughable objects; something mechanical in something living; in fact, something comic. Laughter is a social gesture by which we wake up the individual from his mechanical action."[1] Usually when a mistake of this kind occurs the individual has a vague feeling of uneasiness, a warning of his mistake. He has a feeling that the right image is there but it is evanescent, " a phantasm that disappears just at the moment when motor activity tries to fix its outline".[1]

We now have before us Bergson's clearly formulated theory of memory . We see it standing consistent with his theory of space and time, matter and life, brain and perception. We now examine the data by which he supports his theory.

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1. Bergson, Laughter , p.77.

P A R T II.

THE THEORY VERIFIED

Chapter VII

RECOGNITION

If the past survives under two forms, in motor mechanisms and in memory images the utilising of these past experiences will likewise take place in two ways. Sometimes it will lie in the automatic setting in motion of the mechanism adapted to the circumstances. Sometimes it will consist in an active effort of the mind which seeks in its store of past representations the one best adapted to the present situation. The first would correspond to ha bit, the second to pure memory. Both forms of utilising past experiences are called Recognition. Bergson thinks that the facts of recognition support his theory.

"There is,in the first place, if we carry the process to the extreme, an instantaneous recognition of which the body is capable,by itself, without the help of explicit memory".[1] As one walks about the streets of his native town or through the familiar buildings, he goes about mechanically without the intervention of images or representations. At this

1. Bergson, Matter and Memory, p.109.

stage recognition consists almost entirely of movement and habit.

But this was not always the case. When in the town for the first time he hesitated at every corner, called up pictures from memory, and chose between alternatives. Between these two states, the one when we distinguish only by perceptions, and the other when we act automatically without the need of perceptions, there are intermediate stages where the object is p perceived yet provokes movements which are connected with, and called up by, one another. The extremes are rarely found in the pure state; the intermediate stages are the usual; but there is a progression from one to the other. What these facts indicate is that there is a connection between perception, memory images and the organised motor accompaniment.

Perception, it has been pointed out, is an appeal to activity. When the movements required for the activity become well organised perception is no longer necessary; recognition takes its place. Recognition, therefore, is knowledge of how to act. "To recognise an object is mainly to know how to use it."[1] The truth of this fact is so obvious that

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1. Bergson, Matter and Memory, p. 111.

observers gave the name "apraxia" to the failure of recognition which we call psychic blindness. To know how to use a thing is to sketch out the necessary movements by motor impulses, that is, to use the thing in suppressed movements. The consciousness of these nascent tendencies is at the bottom of recognition.

But we must immediately add that this is not all. The psychic life is there too with all the detail of its past localized in time. It is limited and inhibited by habit which tends to effect an instantaneous passage from perception to action. But it "awaits the occurrence of a rift between the actual impression and its corresponding movement to slip in its images".[1] Such a rift occurs in cases of conflicting tendencies to action or obstructions to free response. In these cases which necessitate a choice amongst the totality of images recognition instead of being instantaneous and unconscious becomes deliberate and attentative.

When we attend to an object it is not only superficially recognised but it grows in richness and meaning. Attension signifies a state of 'tension'. In the first place attention involves an adaptation

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1. Matter and Memory, p. 113.

of body, a certain straining of body, eyes, ears, or muscles which inhibits other sensations and movement. On the positive side attention is the effort which seeks past memory images to insert them into the present perceptions. [1] "Memory thus creates anew the present perceptions; or rather it doubles ~~it by~~ the perception reflecting upon it either its own image, or some other memory image of the same kind".[1] If the memory image will not cover all the details of the perceived object further search is made in the deeper recesses of memory, until the details drawn from memory come to project themselves on those details that had at first remained unperceived. This operation may go on indefinitely --"memory strengthening and enriching perception, which, in its turn, becoming wider and deeper draws into itself a growing number of recollections".[2]

This description of attention and recognition implies the presence of memory images which go out and over lie the object perceived. "Every attentive perception truly involves a reflection in the etymological sense of the word, that is to say, the

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1. Matter and Memory, p.123.
2. Ibid.. p.123.

the projection outside ourselves, of an actively created image, identical with, or similar to, the object on which it comes to mould itself".[1] The recent discovery of centrifugal nerve fibres seems to suggest that besides the afferent process which carries the image to the centres, there is a reverse process which brings back the image to the periphery.

This explains those countless illusions to which we all are subject. We are looking for a person in a crowd and see him constantly because our memory image overlies every figure that it conveniently can. We look over a sheet of proof and miss the most glaring errors because our memory images of the words that should be there overlie the actual letters. The confusion of the memory image with perception causes many a shooting tragedy and explains many a ghost story.

In the act of attention the object and the mind may be conceived to be in a state of tension, the flow being from object to mind and from mind to object. This can be represented mathematically by a diagram or it can be conceived in terms of magnetism.

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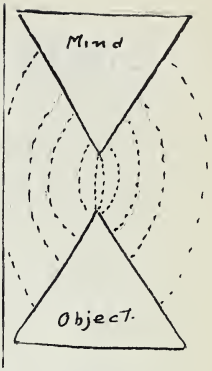
1. Matter and Memory, P.124



or electricity. It is a closed circuit for there can be no perception unless the object creates in the mind an image of perception and unless also the perceptual image calls forth memory images which go forth and overlie the object. If the tension becomes greater more and more remote images will be recalled which reveal deeper and deeper meaning to reality. With each expansion of memory and with each corresponding deepening of reality. entirely new circuits are formed, which over lie and contain all the others. The largest circuit which includes our whole past is repeated in each of the smaller circuits which enclose these same recollections grown smaller until, on the plane of action, memory has narrowed down to become one with action.

Bergson sees in the facts to which he has drawn attention some evidence which supports his theory, and in his theory the best explanation of the facts of attention and recollection. The estimation of the value of this evidence will be postponed to a later chapter.

Chapter VIII

APHASIA

Bergson skillfully uses the facts of abnormal psychologyto support his theory in contrast to the associationist theory with its reliance on definite brain localization or 'centers'. These observations are from two main sources: aphasia and other kinds of 'mental blindness' resulting from lesions of the brain; and amnesia, resulting from an interruption or a general weakening of the functions of the brain. Both involve failure of recognition.

If his theory is true, failures of recognition are not due to the fact that recollections were destroyed along with the portion of the brain containing them; but either because the automatic movements of adjustment cannot take place, or, on the other hand, because "memories can no longer find a fulcrum in the body, a means of prolonging themselves in action".[1] Pure memory itself can never be destroyed,according to his theory, , but the key-board may be destroyed or the strings may

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1. Bergson, Matter and Memory, p.132

be cut. In the first case the calling up of memory images will be impossible, though instaneous, automatic recognition by habit will be unimpaired. In the second case memory images may be present but they do not aid in recognition since they cannot prolong themselves in action.

If the associationist theory were correct the situation would be entirely different The usual explanation is that "the present perception dives into the depths of memory in search of the remembrance of the perception which resembles it: the sense of recognition would thus come from a bringing together a blending, of perception and memory".[1] But the association of a memory with a perception is not a sufficient explanation, "For if recognition took place in this way, it would always be obliterated when the memory image had disappeared, and always happen when these images are retained."[2] But such is not the case as the facts of aphasia easily prove. "In a case studied by Wilbrand the patient could describe with her eyes shut the town she lived in, and in imagination walk through its streets: yet once

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1. Bergson, Matter and Memory, p.105
2. Ibid. p.108

on the street she felt like a complete stranger; she recognised nothing and could not find her way".[1] This case seems to indicate that psychic blindness can occur without the loss of visual memory; that is, failure to recognise the perceived object is not incompatible with the presence of the necessary memory images.

Inversely, in Charcot's case, the classic example of the complete eclipse of visual images, not all recognition of perceptions was obliterated. He could not recognise streets and houses to the extent of being able to name them; yet he knew that they were streets and houses. He did not recognise his wife and children, but he knew that they were a woman and some children. This means that he could not call up certain visual images, yet he could, to some extent at least, recognise the perceived object.

These examples indicate that the power of recognition may be destrpyed in either of two ways; in some cases the memory image can no longer appear; in others, the motor mechanism connecting perception and habitual movement,may be disturbed.

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1. Bergson, Matter and Memory, p.108.

Psychic blindness of the second order, in which there is no recognition and yet visual memory is not lost, is quite common. All observers of psychic blindness have noticed the loss of the sense of direction in their patients. These have lost "the faculty of co-ordinating the movements of the body with the visual impression and of mechanically prolonging perceptions in useful actions".[1] Another characteristic fact of psychic blindness is that the patients are unable to draw with a continuous line. They draw detached portions, as in point to point drawing, and try to unite them. The faculty of drawing depends on organising the outlines of the object by virtual action, and drafting them in a continuous line. That is, it depends on co-ordinating a motor tendency with a visual impression. This is just what the aphasic cannot do, and the seat of his trouble is the motor organism.

Word blindness shows similsr phenomena. The patient is unable to recognise words which he sees or to write them. Yet quite often he can write from dictation or spontaneously. What is lost is clearly

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1. Bergson, Matter and Memory, p. 116

the habit of distinguishing the articulations of the object perceived, that is to say, of completing the visual perception by a motor tendency to sketch its diagram".[1]

This becomes more easily understood if we stop to analyse the act of listening, hearing, and interpreting. Two men listen to a conversation carried on in a foreign language. One perceives only a confused noise of which he can distinguish nothing and can repeat nothing. The other distinguishes vowels and consonants, words, and groups of words. How is it that the same vibrations reaching the two men are so different? The one has recollections to aid him, the other has none. One has a motor diagram prepared to decompose and reconstruct what he hears, the other has not. It is maintained by the associationists that the auditory recollection of words which are called up by association have the effect of strengthening the sound impression. But surely the noise would be none the more intelligible on account of being louder.

There are other difficulties which are involved

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1. Bergson, Matter and Memory, p. 117-118

in the associationist theory. They say that the auditory recollections are called up by the sound impression. "I grant you", says Bergson, "that the memory of a word will call up the sound of that word; yet it is necessary,for this,that the sound of the word should have been heard by the ear. How cam the sound perceived speak to memory, how can they choose in the storehouse of auditory images, those which should come to join them, unless they have been already separated, distinguished,--in short,perceived,--as syllables and as words."[1] In other words this theory explains recognition by a process which presupposes that recognition has already taken place.

Now in word deafness a man is in the same position with regard to his own language that we all are in regard to a foreign language, and the same difficulties of explanation are involved. "The explanation generally given of the disease is that the auditory recollection of words has been destroyed in the cortex, or that a lesion, sometimes transcortical, sometimes sub-cortical, hinders the auditive memory from evoking the idea, or the the perception from uniting with the memory."[2] The explanation would be quite impossible if there were

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1.Bergson, Matter and Memory, p.135.
2. Ibid., p.135-36.

only memories on the one hand and impressions on the other. Bergson thinks, however, that his theory provides the intermediate stages .

There are, as we have stated, a few cases in which there is a complete survival of acoustic memory but without recognition. These could be explained by the destruction of the tracts which connect the auditory organs with the auditory memory centres. But considering the fact that recognition can not be explained even if these tracts were intact, our account of the matter is that the motor diagram or pettern by which memories are realised is destroyed by the lesion.

Moreover the whole theory of definite brain localization has become very doubtful; and it is on this theory that association of ideas depends. Each idea and memory image must have a definite storage cell. The first objection is that each word, each syllable,would have to have its sepatate cell; and not only each word, but each hearing of the word,for we must realise that each time we hear it we have a slightly different impression with a different pitch, loudness, intonation, and significance. On the face of it this is absurd. But if it is only the general motor diagram that has to be accounted for there is

no great difficulty. The tendency to react will be similar, and the consciousness of this tendency constitutes recognition.

Again, if brain lesion destroys the storage cells of specific memories, one would expect certain ideas or memories to be totally destroyed, and others to be retained in their entirety. This is not what occurs. One would expect that there should often be a total loss of some particular word or set of words, and the safe conservation of others. But this is not the usual thing that happens. Sometimes it is the whole faculty of mental hearing which is abolished, sometimes there is a general weakening of the function. The fact of importance is that it is the function which is weakened or destroyed and not a definite set of recollections. This is further proved by the fact that the patient may often recover a word or verse if he is put on the right track or encouraged.

It is essential to the associationist theory to sharply separate perception, memories, and ideas, and to have special 'centres' for each, with connecting fibres to provide for their association. Bergson, however, finds them to be parts of one continuous process. It is impossible, he says, on the assumption

that they are separate things to reconstitute the undivided process. "Nothing is more instructive , in this regard, than the history of the diagrams of sensory aphasia. In the early period, marked by the work of Charcot, Broadbent, Knussmaul, and Lichtheim, the theorists confined themselves to the hypothesis of an 'ideational centre' linked by transcortical paths to the various speech centres. But, as analysis of cases was pushed further, this centre for ideas receded and finally disappeared. For while the physiology of the brain was more and more successful in localizing sensations and movements, but never ideas, the diversity of sensory aphasics obliged clinicians to break up the intellectual centre into a growing multiplicity of image centres --a centre for visual representations, for tactile representations, for auditory representations, etc.,-- nay, to divide sometimes into two different tracks, the one ascending, the other descending, the line of communication between any two of them. This was the characteristic feature of the diagrams of the later period, those of Wysman, of Moeli, of Freud, etc. Thus the theory became more and more complicated without ever being

able to grasp the full complexity of reality. .... The complications of the theory of aphasia being thus self-destructive, it is no wonder that modern pathology, becoming more and more sceptical with reg regard to diagrams, is returning purely and simply to the description of facts."[1]

While the theory of association can account neither for the facts of recognition, nor for those of failure of recognition, the hypothesis which we have adopted supplies the clue to both. The 'image' is the totality of our possible reactions upon it; our perception is but our power of choice amongst the possible actions and is therefore a nascent activity; recognition is knowledge how to act. At first the impression gives rise to a vague, continuous perception which nevertheless organises nascent movements of accompaniment which invite a repitition of the impression derived from a previous experience. Consciousness of these nascent movements, with or without accompanying mental images is recognition. Inability to organise the motor diagram, through aphasic lesion, explains failure to recognise.

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1. Bergson, Matter and Memory, p.157-58.

Chapter IX

AMNESIA

The evidence from the facts of amnesia is similar to that from the facts of aphasia. Both involve loss of memory and recognition. Aphasia results from the destruction of certain areas of the brain; amnesia results from a general weakening or interruption of the functions of the brain. Sometimes, however, it does seem that definite memories are lost. Examining the cases it appears that amnesia is of two kinds: one in which there is a gradual loss of memories according to Ribot's law; the other in which there is a sudden loss of certain memories. The latter of these is generally caused by a severe shock, and it is usually found that the memories that were supposed to be lost are really there, and may be recovered. One patient, for example, forgot the letter F, but it must have been implicitly recognised to be detached whenever seen or heard. Another forgot all the languages he had learned, and the poems he had written, but when set to writing verses he reproduced nearly the same lines.

But the cases of progressive loss of memory are quite different. In these cases first go the proper names, then the common nouns, and last of all the verbs. Now how could the general weakening of the function correspond to loss of specific memories if the memories had a local habitation in the brain? And why should the disease always attack them in the same order?

Now apply our hypothesis to the case. "Memories need for their actualisation a motor ally" and it is the verbs which express imitable actions. Hence these are the ones which are easiest to recall from memory by means of a "bodily effort".[1] Proper nouns, on the other hand, are farthest removed from those general schematic movements which aid in reproducing words. The aid which action gives in recovering words is very noticible in the gestures of the forgetful person, and in the repitition of the initial letter of the forgotten word.

Introspection also lends its evidence to this view. When we hear words which we wish to understand we do not passively wait for the impression to search

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1. Bergson, Matter and Memory. p.152.

out or call up the suitable images. We feel ourselves adopting a certain attitude according to the person speaking, his topic, or his voice. "The motor diagram, emphasising his utterance, following through all its windings the curve of his thought, shows our thought the road."[1]

The central source of error of the associationists is that they confine their attention to the elements into which the thought is broken, rather than to its continuity. Thought is a continuous, undivided process. But, as has been pointed out, by means of the motor accompaniment it is broken up, decomposed into phases, then recomposed gradually into a whole again by successive efforts. The tendency is to solidify these phases into 'things' or independent images and then to account for the continuity of thought by the 'association' of these ideas. But, as we have shown, the attempt to localise these ideas in specific brain certres has failed, because they are not there.

The structure of language illustrates our point very well. In a language poor in words the words are chiefly nouns or verbs of a kind which call up images.

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1. Bergson, Matter and Memory, p.153.

To understand such a juxtaposition of words the mind must, by its own activity, supply the continuity of which the word-images are only phases. A more highly developed language is rich in words expressing relations --prepositions, conjunctions, copulas, complicated sentence structures. This, however, is but a nearer approximation to the continuity of thought; and any language, however elaborated, must leave more things to be understood than it actually expresses. Its words and their corresponding images are but the guide posts which enable us to reconstruct the flow of thought in its continuity. It is readily understood, then, that in loss of memory the process will be approximately the reverse of that followed in the construction or learning of language.

In summarising these two chapters we may now explain how an injury to a definite region of the brain, or a physiological weakening of its general function, abolishes the recognition of words and yet does not destroy perception. Suppose the object be removed or the sense organ be destroyed. There will still be the possibility of the image since the strings are still there. What is lacking is the stimulus which will set a multitude of

strings vibrating together and thus produce the image. The sense organ is the external key-board which permits many strings to be struck at once.

On the other hand, it is not at all inconceivable that a psychical cause could set in motion these strings provided it had an arrangement like a keyboard. Now such an arrangement must be the region of images; it is the mental ear, the organ of virtual images; it is the portion of the brain which is symmetrical with the organ of sense. This is why real hearing survives mental hearing. The sense organ --the external key-board-- is there and the strings are there; but the internal key-board is either lacking or is not capable of functioning; memory cannot play upon it.

Chapter X

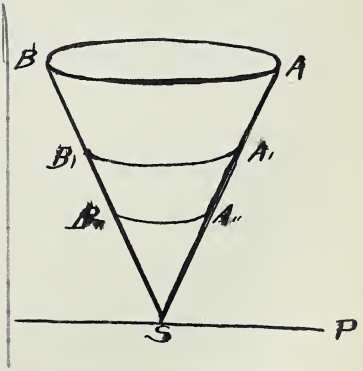
THE UNCONSCIOUS

If the past survives in its entirety it is natural to wonder why we are not always or perhaps ever, aware of the fact. In other words, how can we have psychic states of which we are not conscious? The answer involves an investigation of the meaning and purpose of consciousness.

Consciousness is a faculty whose end is action, a faculty without which all action would be aimless. Just as perception selects from the totality of the image present those things which have an active interest for the organism; just as the intellect breaks up the flow of reality and organises and selects its material for the service of the mind; so consciousness selects from the totality of the past that which has a present active interest. Perception is useful quite as much for what it fails to reveal as for what it reveals; intellect serves the mind quite as much by shutting out the greater part of reality as it does by revealing it by bits; consciousness serves us as much by concealing most of memory as it does by revealing it by parts. Perception breaks up the totality of the image present,

arrangges it spatially, reveals what is of interest, conceals what is indifferent, and thus serves in preparing suitable reaction; the intellect serves the same purpose in regard to reality; consciousness serves the same purpose with regard to memory. Perception, intellect, and consciousness have reference only to activity. The unconscious is simply that part of memory which has no present interest.

The situation might be represented mathematically by a figure of an inverted cone standing on a plane, the cone representing memory and the plane being the level of activity or "the shifting plane of experience". The broad base AB represents the widest field of pure memory removed as far as possible from activity. The point S indicates the present and is the place where the image of the body is situated. The call to activity comes from the plane of experience P to which the body with its sensori motor organisation also belongs. It may receive actions and give back actions in either of two ways: either



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1. Bergson, Matter and Memory, p.211

automatically according to the "laws of nature" as all other images do, or freely through the exercise of choice. Its power of choice comes from the fact it is in touch with all the totality of the past -- with the whole of the cone SAB. The process is very similar to that described in connection with the discussion of recognition and which we described as 'attention'.

The man of action is the man who promptly summons to his aid all the memories which have reference to the situation, and whose action is determined accordingly. One who reacts without the appeal to the past is the man of impulse. One who appeals to memory without the necessity or aim of action is the dreamer.

If most of the time the past is hidden from us it is because our memory is limited by the necessities of action. Between the plane of action, however, and the plane of pure memory which lies most remote there may be a continual movement. Memories continually tend to realise themselves in action by concentration towards S or to dissipate themselves towards AB. In proportion as we search furthur and further into the region of pure memory, not by

concentrating on the necessities of action, but rather by freeing ourselves from that necessity and living in the life of dreams, we find our whole psychic life repeated at wider and wider levels, more and more remote from the immediately useful.

Freedom will consist in reacting, not according to the plane of P where action is determined by "cause and effect" , but according to our whole personality which is bound up with the deeper levels of the past. Freedom in this sense amounts to self-determination according to our own deep-seated psychic states. It means that our acts reveal our personality rather than merely reflecting the acts and ideas of the society in which we live.

The diagram by which Bergson illustrates his explanation of the unconscious is, of course, only a diagram, and must not be substituted literally for the facts which it is intended to clarify. He has shown figuratively how the past can survive in its entirety, how the memories continually tend to actualise themselves in action, but how they are inhibited by the practical necessities of the present situation. The facts of the unconscious are

therefore in conformity with his theory of memory.

The facts of dream life are also cited by Bergson to confirm his description of the unconscious and his theory of memory. In dreams the long forgotten past reappears, often with the most unexpected recurrence of minute details. The hypnogogic visions are also instructive in this regard. So, too, are many of the facts of hypnotism. "But there is nothing more instructive in this regard than what happens in cases of sudden suffocation, in men drowned or hanged. The man when brought to life again, states that he saw, in a very short time, all the forgotten events of his li life passing before him with great rapidity, with their smallest circumstances, and in the very order in which they occurred".[1]

The past, then, survives in its minutest detail. This is true, in some form or other, of every conscious being. Bergson says:"...The organism that lives is a thing that endures. Its past, in its entirety, is prolonged into the present, and abides there, actual and acting."[2]

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1. Bergson, Matter and Memory, p. 200.
2. Bergson, Creative Evolution, p.16.

P A R T III.

THE THEORY CRITICISED

Chapter XI

THE WORLD OF IMAGES

We shall not at this point enter upon a discussion of the general foundations of Bergson's philosophical system, his dualism of quantity and quality, space and time, matter and spirit. The validity of these stands or falls with his theory of memory. When he comes to his explanation of the 'image', of perception, and of representation, however, we are bordering on the particular problem with which we are concerned. Hence we shall begin with his world of 'images'.

Here, as elsewhere, Bergson is suggestive. He reduces the conflicts of science and philosophy, of realism and idealism, to a war of words arising from the fact that the opposing schools have very different points of view. His 'image' is intended as a go-between, as explained in a previous chapter, and it can be viewed from the realistic and scientific point of approach in its relations to other images of the same kind, or from the idealistic and philosophic approach in its relations to the central image of the human body. The points of view are not

necessarily opposed, but they are different, and should not be confused.

Probably everyone will agree that a perceived object is more than our mental representation of it, and most people will agree that it is something less than a self-subsisting thing. Hence we can have no objection if Bergson gives it the vaguest possible name and calls it an 'image'. But we shall object if we are told that we now have a key to the solution of any great problems, such as those which have divided the thinkers into opposing schools. Both realist and idealist might agree that the object as experienced is constituted partly from the standpoint of sensation or stimulus. and partly by our imagery whidh is projected upon it, but such considerations do not settle the question as to what reality is in itself and apart from human knowledge and experience.

That science and philosophy have different points of view is now a matter of common sense and Bergson has solved the relation in a way which adds little to the common view. It has become a truism that science investigates the permanent relations of the universe, and that ethics evaluates; that to

The question naturally arises, what about this 'central image'? Does it belong to the images with which science deals or is it different? Bergson says that it "appears to be a priveleged image". All other images receive and give back motions according to the calculable laws of nature, but the living organism alone is a centre of indeterminism. His logic is: this central image appears to be indeterminate: therefore, we must assume for the present that it is; experiments indicate that the nervous system conditions its freedom; but the nervous system is part of the material world and must reflect movement according to the law of cause and effect; therefore theref must be a psychical force playing upon the nervous system as a telegraph operator plays upon the key of his instrument or as the central makes connections at the telephone exchange.

But here is where he has failed to satisfy the materialist and the scientist. They still insist on including the psychic life within the system of nature, and can find no place for indeterminism. Even the idealist would not postulate a free psychic activity apart from determinate laws. When we consider that the greatest determinists of all time were also the

greatest champions of freedom we see that the terms may not be so mutually repellent.

The ancient belief that the mind of man is a microcosmos is a fanciful statement of the fact that the mind has arrangements for storing up and relating its experiences of the world. The more a man's actions are determined by these, the more freedom he has. Schiller's definition of freedom as self-determination receives more and more evidence in its favor, and this, in fact, is Bergson's own conclusion. But whether this involves indeterminism or merely complex determinism is another question. We favor the latter view, and see no reason for adopting Bergson's assumption, but find less and less use for the hypothesis of an original psychic force. Freedom, in Bergson's interpretation of the matter, amounts to pure caprice. On the other hand, human action, far from being uncalculable, is calculated every day with fair accuracy by those who have dealings with their fellow-men. The science of psychology has nothing to do if human actions are beyond the limits of calculation.

Chapter XII

STIMULUS, ACTIVITY, AND PERCEPTION

When we attempt to analyse Bergson's theory of perception we find the problem becoming more involved. He tells us that, of the total image present the body, unlike other images, reflects only that which it can influence, only that which is of interest, and that this power of choice as to what it shall reflect and re-present is an indication of its indeterminism or freedom.

In all justice to this theory we must recognise a large element of truth. Water, for example, must appear quite differently as perceived by the amoeba, the earth worm, the duck and the hen. To each it offers an invitation or a threat of an entirely different kind. The same water will appear quite different to the born sailor and the land man, to the sanitary engineer and the painter. For each it enters into an entirely different set of relations and presents different possibilities. This, of course, is largely a matter of what is attended to , or of the racial history of the organism,or of the education of the individual . Bergson is right in

drawing attention to the selective nature of perception.

And yet we must not go too far in this. The invitation to act is as much a product of our feeling towards the object as of our representation of it. Suppress their feelings, and the anarchist and the loyalist would have very similar representations, that is, mental images of the royal procession, but to neither would it present an invitation to act. Its is the feelings and impulses which pass over into actions of shooting or applauding rather than the mere representations of the scene.

Moreover, our representations appear to be wider than our possible actions upon things. It is hard to see how the brilliancy of a sunset or the beauty of a painting can be an invitation or a threat, or how the ever shifting colors of a peacock's tail reflect our possible actions upon it. In fact Bergson would have to begin by working out a theory of colors in conformity with his theory of colors, and this has not yet been done. No doubt at least a partial theory of this kind could be made plausible. Bees, we know, are angered at the presence of black, and bulls at the sight of red.

To men blues are said to be subduing, greens pleasing, yellows elating, and reds exciting. Perhaps in the history of the race these colors were at one time invitations or warnings. Black may have been the prevailing color of the bears and other enemies of the bees; the red which angers the bull and many other animals may have been the red of blood. But this theory would merely make the color feelings vestiges of earlier times; it would not explain the facts of color sensation, nor make color perception equivalent to our present active interest.

The difficulty of making perception correspond to the useful is that there so many elements in perception which are inevitable, whether they are useful or not. The waves of light falling upon the eye produce chemical effects as inevitably as on the photographic film. Wave beats striking the ear set up vibrations as regularly as on a stringed instrument. Now Bergson avoids this difficulty by contending that this is not perception but sensation. Many impressions on the eye, many vibrations of the strings of the concha, are never perceived. Perception travels from centre to periphery, since it depends on the projection of images. Sensation measures our

power to absorb; perception measures our power to reflect. Perception is outside our body; sensation is within.

Bergson substantiates this position at great length and we can scarcely do justice to it in a brief treatment. Our criticism is that it gives an explanation that is one-sided. He declares that we must begin, not with affection, but with action. This seems somewhat arbitrary, though not more so than to begin with affection in the form of elementary sensations and by composition to derive perception, apperception, and finally, movement. The nervous system co-ordinates stimulus and action, and it is probably immaterial which is treated first. Indeed, it may well be that in rudimentary cases affection and action are identical, neither being the logical cause of the other. The vibration of a pendelum need not be considered a result of gravity; it may more properly be consider a phenomenon including gravity. And the beating of the heart, or any of the rhymthmical movements are at the same time affection and action. It was demonstrated long ago that these rhythmical movements are entirely independent of the nervous system; that in the case of even

such highly developed animals as rabbits, the brain and the whole spinal chord may be removed, and after the first shock the heart will again start to beat.[1] More recently Professor Loeb has demonstrated that the rhythmical movements of the medusae and other sea animals can take place without the nervous system, and that it depends on such mechanical conditions as the salt solution in which it is placed. Even sight may take place unimpaired when the whole of the hemispheres have been removed. These facts indicate that affection cannot be taken as one thing and reaction another, but that they form a single act which may, in complex cases, be separated into two or more phases. In the lower organisms the two phases are identical, and Bergson has pointed this this out. At the reflex level the two phases are identical,or almost so. But in the scale of animal life there is a gradual separation of the two, and at some stage there arises conscious perception as an intermediate link.

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1. Experiments with a view to ascertain the principle on which the action of the heart depends and the relation which subsists between that organ and the nervous system. Transactions of the Royal Society, Vol.105, 1805.

Regarding perception as an intermediate link it is immaterial whether we begin with action or stimulus. The essential thing is that we recognise both factors, and the value of Bergson's theory is that he has transferred attention from a one-sided devotion to affection to a consideration of the side of action. In this he has probably done a great service The weary psychological experiments in trying to measure perception in terms of stimulus have had their day. The central field is now that of action--how it is reinforced, inhibited, conditioned, or changed, how it is affected by the emotions, and how it is guided by deliberation. Bergson seems, however, to have gone to the opposite extreme.

The inherent weakness of Bergson's over-emphasis of the phase of activity is that it makes all life teleological. Conscious perception does involve representations of final ends, distant goods or evils, and so in a sense the higher organisms may be said to act teleologically--at least in so far as they act reflectively. But to interpret all life as teleological is hardly justifiable. The turning of the leaves of a plant towards the sun has no more connection with the 'end' than the turning

of the magnetic needle towards the pole. The pursuit and ingestion of food by the amoeba is apparently as necessary as the attack on gold by mercury. It is a case of stimulus and reaction combined in one phenomenon without any intermediate representation of ends.

Perception is virtual action in so far as it is intermediate between stimulus and response. It does reveal in the object the possibilities of our action upon it, and involves incipient responses to the object. Thus far it would be hard to gainsay Bergson's theory. No doubt the power has been developed in the history of the race and in biological evolution generally, and has served teleological purposes. But this does not mean that it is now entirely subservient to the end of action. It may be that it is far wider than the useful; that we have power to appreciate the useless. Such appears to be the case.

Moreover perception can be studied from the side of syimulation quite as profitably as from the side of action. The dynamics of sound waves, of waves of color, light, and heat, the chemical properties of the substances we taste and smell, all

throw great light on the nature and laws of perception. No complete study of perception can be made from the point of view of action alone. When, therefore, Bergson says that we must begin with action we may reply that it is just as right, and probably more logical, to begin with external stimuli and our organs for receiving them.

His contention that perception is outward, that it travels from center (the body) to periphery (the outside world), again, is only a partial truth. The part that is played by the projection of images has not been fully explained by psychologists, and is very suggestively treated by Bergson. A thousand illusions, however, might be taken to show that perception is not in the object but becomes localised through education and unconscious judgment. We do not hear sounds in the object but we localise them there. The ventriloquist could never deceive the audience if we actually heard the sound at its source. By working the jaws of his dummies and by changing his voice to suit their various parts he causes us to localise the voice where he wishes. But however skillful he may be, we can, by an effort, centre our mind on the performer and discover that

the sounds are coming from his own throat. To say that perception is in the object will hardly explain the facts. The drunk man who sees two moons might well quote Bergson to prove that there really are two moons in the sky. The perceptions to which an object gives rise are put together or synthesised in the object, and this act of constructing the object may or may not be valid and trustworthy. Perception is, therefore, not a one-way act but involves a circuit of stimulus and response.

But a problem greater than that of how the images can be projected and made part of the constitution of the object, is how we can have such images at all. Bergson's theory of perception does not explain it in the least. He compares it to the reflection of light . "That which is given is the totality of images of the material world with the totality of their internal elements. But if we suppose centres of real, that is to say, of spontaneous, activity, the rays which reach it, and which interest that activity, instead of passing through the centres, will appear to be reflected, and thus to indicate the outlines of the object

which emits them.....Perception, therefore, resembles those phenomena of reflexion which result from impeded refraction; it is like an effect of mirage."[1]

Now throughout this explanation, suggestive though it may be, Bergson is speaking in analogies and arguing from assumptions. In what sense is it true that "That which is given is the totality of images of the material universe"? He is thinking, of course , of Faraday's law: "The lines of force emitted in every direction from every centre bring to bear upon each the influences of the entire universe."[2] This is a highly speculative assumption and useless in explaining any given phenomenon. We have discredited astrology, but according to this law the stars really do exert an influence over the fate of the new-born child. There are influences relevant and influence remote, potent influences and negligible influences; and Faraday's law, though beautiful in the extreme, is hardly a safe analogy for the explanation of a specific act such as that of a perception. When Bergson says that the totality of images of the material universe is present and

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1. Bergson, Matter and Memory, p.30.
2. Ibid.,p.31.

given, we may well reply that the human mind is not omnipresent, nor are all things present to it. It is shere mysticism to hold that Hong Kong, New York, Venice, Mars, and Jupiter are all present though sensation can not absorb, nor perception reflect, them. This assumption that the universe is present with each individual has its counterpart in his still wilder assumption that in memory the totality of the past is stored up in the form of memory images.

His analogy between the reflection of rays of light so that they form virtual images, and the reflection which takes place in the nervous system producing representations or perceptions, is too vague to admit of serious discussion. Since the nervous system does not seem to reflect mechanically Bergson must postulate centres of real, that is, spontaneous activity. Not only does this seem the most unwarranted of assumptions, but it is entirely impossible to see how a centre of activity should allow rays of force to pass through or be reflected at will . This makes a whole personality instead of a mere centre. How can he speak of a centre of activity being interested, discarding what is of no

value, and choosing that to which it shall respond? These are acts of a complete personality.

Psychology must still confess ignorance on many of the problems connected with perception. At best Bergson is suggestive in his treatment. The chief merit lies in his close analysis of the relation of perception with action and his indication of the probable relation between the development of perception and the organic needs of the organism in its evolution. His suggestion regarding the part of the projected image in the constitution of the object of perception may also be valuable. All thesegive rise to problems for others to work at rather than to solutions which we are justified in accepting.

If we could understand perception we should have taken a long step in the direction of an understanding of memory. It may be that memory is just the reinstatement of the mechanism of perception. But if Bergson is right in his contention that perception demands centres of indeterminism--and we are far from admitting that he is--it may be that memory is more than the reinstatement of a mechanism.

Chapter XLLI

THE THEORY OF PURE MEMORY

A man learns a poem by heart by successive repititions. At the end of that time, Bergson says, the repitition of the poem will be a motor habit. But there is also the memory of each successive attempt which is not a motor habit, but which "is entirely sufficient to itself", "subsists exactly as it occurred", is a representation and only a representation", "is embraced in an intuition of the mind which can be lengthened or shortened at will", "and there is nothing to prevent me from grasping the whole of it instantaneously as in one picture".[1] Such is the character of pure memory.

Let us examine these statements one by one. (1) It is entirely sufficient to itself. This means that it is not conditioned by anything else. To test this statement I memorise a short German poem. Then after two weeks I try to remember the second attempt at reciting it, and the process is about as follows: I recall when--just before

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1. Bergson, Matter and Memory, p.91

dinner; and where--standing by the table; and the circumstances--certain persons listening. I recall the fact that I repeated the first stanza correctly (I do not have a representation of the stanza in my mind when I recall this fact). I remember that I had to look at the book for some line in the second stanza; I can't remember at what point until I repeat the stanza to myself; the irregular third line recalls my difficulty in learning it and now I remember. The third stanza I had to read from the book.

My memory, then, does not appear to be entirely sufficient to itself. It does not work by visual images entirely though these are present, but by inference and association. And this is the experience of a great many. Many persons, James tells us, have little visual imagination, but many of them are of the auditory type, many are of the motor type, and, of course, some are strong visularises. Nearly all combine the various forms of reproductive imagination.

Now when Bergson says that <u>pure</u> memory "is entirely sufficient to itself" he flies in the face of all experience. The very basis of memory is association. We remember the past by reconstructing

point by point, and filling in the gaps by inference and imagination. This is the process which has for a long time been known as association, and the possibility of memory seems to depend, in part at least, on this process. If our contention is correct no memory is "sufficient to itself".

(2) It subsists exactly as it occurred. Bergson gives no accumulation of evidence to substantiate this assertion, and we shall show that, from the nature of the case, it cannot be proved. What evidence there is would seem to be entirely apposed to the theory.

We all have realised that the habit of forgetting is as necessary for effective work as the habit of remembering. The person endowed with "total recall" would have a memory as cumbersome as it was useless. As a matter of fact I shall not remember all the successive attempts to learn by heart the poem just mentioned, and I cannot remember all the attempts even now; to the best of my knowledge the memory of them is entirely lost. Moreover it seems impossible that the contrary could ever be established. In hypnotism events may be recalled which the individual had apparently forgotten; in dreams many long forgotten scenes are brought back; in crystal gazing even

minute details of incidents and scenes which did not rise to the threshold of consciousness may be brought to light. But few would go so far as to say that a complete record is kept of all events exactly as they occurred. Striking as these phenomena are they fall far short of indicating what Bergson claims. Even the apparent unwinding of the whole of an individual's past, as in the case of drowning, is a phenomenon which, from the very nature of the case, does not admit of analysis rigid enough to substantiate Bergson's thesis. All organisms, trees for example, and even inorganic things like the strata of rocks, store up the past in some form. But they never keep a complete, clearly legible, and perfectly exact record. What the human brain stores up, in the same way, is in all probability a modification of the structure, a habit of reaction, a stratification of periods, which makes possible a more or less complete reinstatement of the action and imagery of the past.

But Bergson admits the biological and physiological organism, admits that it stores the action of the past in the form of memory habit, admits that it is liable to decay and disease. He admits that if the organism is not working perfectly there can be

no perfect recall or recognition. But he claims that this is not because the memory is not perfect, but because it can not realise itself in an imperfect mechanism. Obviously his thesis can be neither proved nor disproved. All we can do is to show that his hypothesis is unnecessary and useless. We have already shown that it is highly improbable.

(3) It is a representation and only a representation. By a representation he means, as is explained in a foot-note, "a mental picture, which mental picture is very often a perception."[1] More widely, he seems to mean any of those forms of imagery treated by psychologists.

There is no doubt but mental pictures flash before the mind, yet any effort of memory is certainly more than such a flash of representations. It involves an effort, the concentration of attention, a gradual development, point by point, of the picture. As we have shown, it involves inference, reason, and constructive imagination. It may even be that mental pictures are not the main thing in some types of

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1. Bergson, Matter and Memory, p.3., translator's foot-note.

memory, and some kinds of memory material, imagery plays a very secondary or negligible part. It is probable that Bergson had the French gift for visualising to a remarkable degree, but few of us are so gifted, and we would quote from the careful experiments of Galton to prove our contention.

(4) It is embraced in an intuition of the mind which can be lengthened or shortened at will; and (5) There is nothing to prevent me grasping the whole of it instantaneously. When one concentrates on remembering a past scene, the very fact of the concentration or focalization prevents the freedom of associations which would render the return of the image likely. One must travel slowly over the parts and gradually, if at all, form the representation of the whole.

Often, however, images which we cannot recall by an effort, come of themselves in dreams or in periods of relaxation. As Bergson says, we must be able to withdraw ourselves from the action of the present, we must have the will to dream. But what come into our minds when we relax are seldom the exact reproductions of past scenes. Children are very subject to hypnogogic dreams, and the images

which they see are anything but true images of memory. So vivid are these pictures of imagination that they often confuse truth and fancy. The dreams of grown people, too, show such an active imagination that it is usually difficult to understand where the various elements of the dream had their origin. Nor are the images which slip themselves in during relaxation altogether reliable. Would that they were! The mind is more liable to work in old tracts during relaxation when the interest of the moment is less pressing, so it is not surprising that memories which would not arise when the mind was in tension,now come up uncalled for. But to argue from this that there is a pure memory which is perfect and which might be instantaneous in its grasp is more than the facts warrant.

Our chief objection to Bergson is not so much that his theory is not sufficiently proved, or thatit is highly improbable, or even that it is an entirely unwarranted assumption which cannot admit of scientific proof, as that it does not do justice to the study which has already been made of the psychology of memory. His theory had already been rendered almost unnecessary before he formed it.

The first obvious injustice is Bergson's comparison of the nervous mechanism to the wires, key-board etc. of a telegraphic system or a telaphone exchange. The parallel is good as far as it can be legitimately drawn. The nerve tracts do carry stimulation in a manner analogous to the way in which the wires carry the electric current , though even here there are important differences. And like the telephone wires they are insulated, are united into bundles, and lead to a central exchange. But we cannot carry the analogy much further for there are important differences.

In the case of the telephone system the wires lead without break to the central office where they are connected by an external agency, the telephone girl, who connects them at will. But in the case of the nerve tracts each consists of hundreds of separate neurones which must be connected all the way from periphery to centre in a manner precisely similar to that in which they are connected at the "central". No external cause is needed to insure a continuous current in the synapses remote from the centre, and it is unlikely that the brain will require any external psychic force at the centre.

In the human body a large part of the nervous system is already organised at birth or shortly after. The resistance of the synapses has been overcome through generations of use, and so we have original physical habits--racial memory it has been called in one theory. Other parts of the nervous system, e.g. those connected with the cerebellum, become organised in a short time, perhaps more by the hardening of the cell walls and by other biological changes than by any effort or activity on the part of the child. Co-ordinated effort and practice effect orgabisation in other parts of the nervous system , and here comes the period of play when the child quickly learns to use his body, and forms the physical habits of a life time. Now there is nothing in the telephone system which corresponds to these facts of biological development. The telephone system is a physical apparatus, the nervous system is biological. The latter can no more be compared to the former as a whole than could a man to an automaton; they are no more alike in their parts than is a free moving amoeba like a small piece of wire or an iron filing.

Even admitting that the nervous system conducts

movements, and that movement can beget nothing but movement, there is no need of yielding ground to Bergson's theory of pure memory. Movement is not such a crude elementary thing as at first appears. Movement, in the first place, is inconceivable apart from matter; it involves space; it involves time; it involves energy. The motions of the heavenly bodies involve gravitation; those within the body involve cohesion; those within the molecule involve all the problems of atomic orbits, ionisation, etc.; those within the atom are still more complex. The various tropisms (heliotropism, geotropism, etc.) are specific movements.

The statement, then, that movement begets nothing but movement is a useless abstraction which might include all that takes place within the universe. The reason that it cannot explain memory is that it is only one of the many relations involved in any of the complex phenomena with which the biological sciences deal.

There is no doubt but that the investigation of physiological psychology has been disappointing to those who expected to unravel the secret of life and of memory by this investigation. But it is one thing to admit ignorance, and to turn to more fertile

fields, and it is quite another thing to postulate a psychic force independent of the nervous syatem. This, after all, is just an unscientific way of giving a name for our ignorance. The physiological psychologists have investigated the mechanism of the nervous system, and their discoveries are interesting and valuable; but they have been dealing chiefly in statucs. Professor Loeb says: "It seems to me that we can no more expect to unravel the mechanics of associative memory by histological and morphological methods, than we can expect to unravel the dynamics of electrical phenomena by a microscopic study of cross sections through a telegraph wire or by counting and locating the telephone connections in a big city."[1] His statement is peculiarly like that of Bergson, but his conclusion is entirely different: "If we are anxious to develop a dynamics of the various life phenomena we must remember that the colloidal substances are the machines which produce the life phenomena. But the physics of these substances is still a science of the future."[2] This is the true trend of physiology, and promises much more

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1. Loeb, Comparative Physiology of the Brain, p.289
2. Ibid.,p.290.

than does any assumption of an original and unknowable elan vital.

It is just this oversight of what is most essential to the problem, namely, the continuity of matter and life, which makes Bergson so very unscientific. He has taken a simple, primitive conception of soul and body, and has sought to establish it by the most wonderful and diversified accumulation of evidence from the whole range of the sciences. He has plenty of keen observation; he attacks unceasingly the crudities of which psychology has been so guilty; and he inspires a broader outlook from new points of view. His influence can be seen in every psychologist of the day, but no one quotes Bergson in support of any proposition in psychology or any other field of science.

His theory of pure memory has nothing in its favor. In the nature of the case it cannot be either proved or disproved; there is no evidence which indicates a memory such as he describes; if it existed it would be a complete personality duplicating the one which we know, and hence only pushes our problem back into the unknowable realm of pure spirit.

Chapter XIV

THE THEORY OF ASSOCIATION

In handling the problem of association of ideas more than in any other department psychology has been guilty of crudities. Bergson has pointed these out with keen insight--though he has usually added to their crudeness in his statement of them. His sketch of the history of the diagrams of brain centres and association tracts is particularly instructive. His conclusion is that the associationists were looking for storage cells of ideas, images, and memories, and that they failed simply because these things were not there.

They are not there, Bergson thinks, but somewhere else, namely, in pure memory; and this pure memory slips in its images into the motor mechanism as the demands of action, or the opportunities of inaction, require or permit. Bergson's theory is even more crude than that of the associationists. He asks, where are the images of memory if they are not stored in the brain cells; and he answers, in a purely psychical memory where everything is accumulated intact. Surely the answer should be

that the images are simply nowhere. The same brain processes which gave rise to sensation and perception can, by a kind of internal stimulation, recreate the image or recover the action of the past.

This is along the line of the theory proposed by Bain and Ribot that perception, once it has taken place, modifies the structure of the nerve tract to such an extent that it becomes an acquired disposition, and thus contains the possibility of regenerating the perception which caused it. Memory is, in short, a biological fact, and what is more or less permanent is the brain structure which the experiences of every day life have modified. The habit memory, according to this theory, is the only memory we have, but habit includes visual, auditory, olafactory experiences as well as what are called motor experiences.

Bergson's own description of the process of actualising memories leaves almost no place for the pure memory which he postulates. If there is an internal key-board which is set in vibration in harmony with the external key-board to which it is tuned where is there left a place for the psychic force to do anything? The machinery for recognition seems

complete without it. The re-creation of the imagery of past perceptions is provided for, and the projection of images to overlie the objects in space.

Moreover this description involves a brain localisation almost as rigid as that of the associationists. Speech centres, auditory centres, etc. are required, since Bergson can hardly maintain that any part of the brain can respond equally well to the impulses from the sense organs which constitute the external key-board. This being so, it is hard to see how he can afford to condemn so utterly the work of those who have so patiently mapped the human brain.

His point that brain cells do not store ideas and images is one which any associationist might accept. Bergson has probably done a service in emphasising thatneurones do not secrete ideas but store up the <u>action</u> of the past; i.e.he has emphasised the functional view of the associationist theory. Admitting the truth of the functional view there is still full value to be given to the work of those who have localised the centres of brain activity. This work has been done too carefully, and has been repeated too often, and too minutely, to be overthrown by a breath.

Recognition, that is, the realisation of memory appears to be the ability to respond suitably to a stimulus which has been given on previous occasions. In some cases it involves only what Bergson calls habit or motor memory, as when one walks through the familiar streets; in other cases it involves reflection and the utilization of mental imagery, as when one gets lost in less familiar streets. It is a mistake, however, to regard these as memories of entirely different kinds. Both involve the nervous mechanism, and either is distroyed if that part of the mechanism is impaired which the reaction involves.

In Wildebrand's case, cited by Bergson, the patient could describe the streets and houses of his native town, but was completely lost if placed in the familiar surroundings. Bergson argues that the memories are there but cannot realise themselves in action because the motor diagram is lacking. But the explanation might better be simply that the patient can react to the auditory stimulus to the extent of visualising the streets and houses, but could not react to the extent of organising a suitable motor response. There is no purpose served in saying

that the memory is intact but that the motor diagram is lost. What is lost is the ability to respond suitably to a visual stimulus; what is retained is the ability to respond suitably to an auditory stimulus, whether the response demanded is a motor reaction or a visual reaction. The location of the lesion verifies the description.

The inverse case which Bergson cites, in which not all recognition was lost though all particular memories seem to have been destroyed, is merely another example of the same kind of thing. He could not recognise his own wife and children though he knew them to woman and children. This means nothing more than that certain specific 'motor diagrams' had been impaired, hence recognition, in the sense of suitable response, was gone. Certain powers of imagery were also destroyed, a fact which had, no doubt, a direct bearing on the loss of recognition. The case seems to give added weight to the theory of rather strictly localised brain functions.

The cases of word blindness in which the patient seemed to have lost all recollection of words and poems, yet under certain conditions regained them, point to a similar explanation. These cases do not

necessarily suggest a pure memory which has remained intact while the nervous mechanism was not functioning. There is nothing to prevent the much simpler assumption which directly describes the facts, namely, that with the loss of the function went all that we mean by memory and recognition. What we call memory and what Bergson calls the realisation of memories are the same thing; there is no need of assuming anything beyond the organism and its functioning.

Bergson assumes that the regaining of memory, or the recall of incidents and events which were thought to have disappeared for ever, proves the existence of a memory which stores up the whole of the past exactly as it occurred. But alternative explanations are not difficult. In cases of shock there is evidence for the hypothesis that the delicate fibrillae of the synapses contract, and the synaptic connections fail to function. The power of recollection in this case is lost only temporarily; nevertheless it <u>is</u> definitely and entirely lost for the time. Softening of the brain, on the other hand, means total and complete effacement of the traces of the past, and th there is no evidence to support Bergson's thesis that

the memory remains intact awaiting a chance to operate a suitable mechanism.

Where the mechanism is not destroyed but is not functioning, there is always the possibility that it may recover its normal condition. This may involve not simply waiting, but an active effort to relearn, as in the case of the word blind poet who re-wrote almost the identical poems which he had forgotten. Numerous cases have occurred in which relearning has been very rapid. This indicates, as Bergson says, that what has been lost is the function, not definite brain cells with their store of 'images' and 'ideas'. But it does not indicate that the memory was all the while intact.

Besides the possibility of retraining the same tracts which have temporarily lost their ability to function, there is even a possibility that other fibres and other tracts can take over the connections and perform the functions which belong ed to the portions destroyed. This is a pure assumption,and if true, would substantiate Bergson's claim that the localisation of brain functions is not as definite as certain morphologists have thought. Interesting in this connection is the possibility sometimes put

forward, that the functions which have been lost by one lobe of the brain may be taken over after a brief retraining by the other lobe. This, again, is for the present, pure hypothesis. But, granted the possibility of this retraining of the area where the function is interrupted, or of a different area, what does it indicate? That the memory has remained intact awaiting the training and preparation of a suitable key-board? The simpler hypothesis involves no such assumption. What was lost has been regained, namely, the ability to respond suitably to the given stimulus.

Hence we find that the theory of association, stripped of its crudities, and given a functional interpretation, accounts for all the facts as completely as does Bergson's theory of a two-fold memory. Bergson's theory requires all the machinery of association, and when we have all the machinery we have no need of the Bergsonian pure memory. Even granted that a psychic force could play on a material instrument, there is nothing left for the psychic force to do.

Chapter XV

CONCLUSION

What, then, shall we do with Bergson's theory of memory? He has criticised psychology with rare acuteness and insight, and he has reconstructed in a way which is suggestive and inspirational to a high degree. But no one would claim that his treatment of this problem which is essentially psychological will stand any scientific test. The truth seems to be that his destructive criticism is good, that it was necessary, and that it is re-shaping psychological enquiry. Investigations are becoming more careful, less dogmatic, and more methodical. But his reconstruction, though suggestive, is based on a philosophical system which he never for a moment loses sight of. To some, then, it will be stimulating and inspiring, but to many it will be a mere avalanche of verbiage, a conglomoration of assumptions and visions supported by metaphors and analogies and colorful pictures.[1] Our criticism is that he has handled a scientific problem in an obviously unscientific manner.

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1. See criticism in Hugh S. R. Elliot, Modern Science and the Illusions of Professor Bergson.

On the destructive side what we found of most value was Bergson's criticism of the storage aspect of the associationist theory, and also their account of perception and recognition. Bergson, however, added to the crudeness of the theory in the statement of it, and took no account of the more recent developments in the direction of a functional associationism. In the direction of the further development of this aspect of the theory we found the more promising path to lie. Professor Loeb has indicated more correctly the true path of science in regard to the mechanism of the brain. The work of those anatomists who have mapped the regions and 'centres' of the brain has thrown much light on the problems of association, memory, and recognition , and further development of their work is needed before we have accurate evidence on many of the issues raised by Bergson.

Bergson's application of the data from abnormal psychology, especially that of aphasia and amnesia, is too scattered and indefinite to be of much value. The cases are too few, the information too meagre, to be very conclusive. All the facts which he points out , however, are open to an alternative explanations, and we find that the theory of a two-fold memory is

unnecessary and unwarranted. His skillful use of the material does, however, cast considerable doubt on the theory of specific brain localization.

On the constructive side the most important contribution of the theory is its emphasis on the functional aspect of the brain mechanisms, and on the activity aspects of perception, thought, and memory. The study of these from the side of mere sensation had become barren. The new emphasis on the activity of the organism threw a flood of light on many problems. It is only fair to add that Bergson is by no means the originator of the study of habit, perception, etc. from the standpoint of activity. What Bergson did was to catch the tendency of modern psychology and give it vivid expression.

As a theory of memory Bergson's leaves much to be desired. We cannot prove that there is no pure memory in which all of our past remains forever unimpaired, because Bergson claims that any apparent loss, interruption, or failure is due to the organism alone. Hence to disprove his theory is impossible. But, by the same token, the theory cannot be proved. If his whole philosophy stands or falls with his theory of memory, then it floats between heaven and

earth, unsupported except from within. It is quite probable that the dualism between body and mind which we found so untenable in the explanation of memory, has its parallel, equally untenable, in the dualism of space and time, quantity and quality, determinism and freedom, matter and spirit.

Finis.

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* Most of the periodical literature referred to by Professor Bergson in Matter and Memory was not available at the time the above was written.

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